

Amendments to the Specification

Please add the following new paragraph after the paragraph ending on line 24 of page 3:

Fig. 9 is a flow diagram of a document forgery protection printing and detection system according to an exemplary embodiment of this invention;

Please replace the paragraph beginning on page 5, line 21, with the following rewritten paragraph:

The policy 113 may also conduct a search of the content of the document 140 to determine the required protection level. The search could be, for example, a keyword search or a keyphrase search of the document ~~40~~140. The protection requirements of the document 140 could be dependent on the number of occurrences of various ones of the keywords or keyphrases.

Please replace the paragraph beginning on page 5, line 26, with the following rewritten paragraph:

The policy 113 determines the security requirements for the document 140 to be printed. For example, the policy 113 may determine that the document 140 to be printed requires protection against forgery by copying using a standard photocopier. Alternatively, the policy 113 may determine that the document ~~40-140~~ to be printed requires protection against scanning, image processing, and alteration of the contents of the document 140. Once the policy 113 determines the security requirements, the print management system 112 identifies the specific combination of protection techniques needed to meet these requirements. The print management system 112 then routes the print job to one of the trusted printers 131-135 that can apply the appropriate protections and sets the parameters in the selected printer to apply the appropriate protection techniques to the document 140. Examples of the protection levels that can be applied to the document 140 when it is printed, the forgery techniques that the protection levels protect against and the equipment necessary for creating the protection level and verifying the authenticity of a document are described in Table 1.

Please replace the paragraph beginning on page 10, line 11, with the following rewritten paragraph:

The fragile variable copy evident watermark may be made more difficult to forge by encoding the copy evidence in the fragile variable copy evident watermark so that the information can only be decoded by a secret key contained in the trusted printer 131 or 133 or belonging to the content owner. The copy evidence contained in the fragile variable copy evident watermark may also depend on unique physical characteristics of the trusted printer 131 or 133. For example, a random pattern may be applied to the document by the trusted printer ~~31-131~~ or ~~33-133~~ as disclosed in U.S. Application Serial No. 09/504,036 (Attorney Docket No. 104134), incorporated herein by reference in its entirety. Copy evidence unknown to an adversary, such as a forger, could also be encoded in the fragile variable copy evident watermark or the fragile variable copy evident watermark could be printed using methods that are difficult or very expensive to reproduce such as, for example, spectral modulation.

Please replace the paragraph beginning on page 16, line 5, with the following rewritten paragraph:

As shown in Fig. 1, the trusted printer 134 can print documents having Level 6 protection. As shown in Table 1, copy evidence is provided by the use of a robust fluorescing black copy evident mark. For example, such a mark could be created by printing fluorescing invisible ink over ordinary black ink. The fluorescent black ink is used to print fixed portions of the document contents (the portion selected to be printed in this way does not depend on the document contents). Tracing information can also be encoded in the mark. As shown in Fig. 9, Level 6 provides protection against an adversary who uses a plain copier to make an unauthorized copy or attempted forgery and who does not have access to the special ink. Level 6 also protects against an adversary with physical access to the trusted printer that detaches the fluorescing toner, since this would cause portions of the printed page to disappear.

Please replace the paragraph beginning on page 16, line 15, with the following rewritten paragraph:

The equipment that can be used to provide Level 6 protection includes fluorescing black toner or ink in an ordinary highlight or color printer or a combination of fluorescing

invisible ink and ordinary black ink. A special viewer can be used to detect and verify the correct pattern of the copy evident watermark.

Please replace the paragraph beginning on page 16, line 28, with the following rewritten paragraph:

As shown in Fig. 1, the trusted printers 134 and 135 can print documents having Level 7 protection. As shown in Table 1, Level 7 protection includes a robust fluorescent black variable copy evident watermark. As shown in Fig. 10, the fluorescent black toner or ink is used to print randomly selected portions of the content of the document. The information about which pattern is used is encrypted and encoded as a glyph code that is printed on the document using a key that is known to the trusted printers 134 and 135 and to an inspector device. The inspector device can read the glyph code, decode the glyph code to get the encrypted pattern information, and decrypt the pattern information. The copy evidence and the tracing information are also encoded in the watermark.